

The form of the body is very similar to that of *Hister*; it is glabrous, elliptical, and moderately convex; the elytra are truncate, so as to expose the last dorsal segment; the male has an additional small anal segment. The anterior tibiae are more dilated than the others; their outer margin is finely serrulate, and the outer angle somewhat produced; the terminal spurs are unequal, the larger ones slightly bent; the prosternum is dilated and rounded posteriorly; the middle coxae are distant. The first ventral segment is larger than the others.

By this detail of the characters, this genus will appear obviously different from any described by Erichson in his systematic arrangement of Nitidulariæ, (*Germa's Zeitschr.* 4, 267 et seq.); it seems to approach most closely *Ischæna*, (p. 287,) and *Ipidia* (p. 289.)

P. histrina, elliptica, modice convexa, nigro-picea, nitida, capite thoraceque parce punctulatis, punctis maioribus intermixtis, elytris striis 9 punctatis impressis, interstitiis parce subtilissime punctulatis, pygidio punctato. Long. .21.

Pennsylvania, in fungi, Dr. Melsheimer and Mr. Ziegler. The thorax is narrowed in front, emarginate at the apex, with the anterior angles not rounded; the sides are broadly rounded, finely and strongly margined; the base is broadly rounded, with a broad, short and truncate lobe in front of the scutel; the latter is large, triangular and sparsely punctured. The striae of the elytra are entire, and the 9th is slightly sinuous; the apex is truncate and has a few confused punctures at the termination of the striae; the punctures of the pygidium are moderately large and shallow. The under surface is punctured; the epipleurae are concave and punctured. The base of the antennae is feebly rufo-piceous.

[*Note.* The manuscript of the "Synopsis of *Scaphidilia*" by Dr. Le Conte, having been mislaid, its publication must be deferred.]

The Committee on the following paper by Dr. Le Conte, reported in favor of publication in the Proceedings.

Synopsis of the species of the Histeroid genus ABRÆUS (Leach), inhabiting the United States, with descriptions of two nearly allied new genera.

BY JOHN L. LE CONTE, M. D.

The number of species of *Abræus* found within our territory, renders the genus quite worthy of a special notice; as they are all very small and uniform in appearance, they present at first a moderate degree of difficulty in determining their characters. This difficulty, however, vanishes under a closer inspection, which shows the species to be as well defined as in other genera of the same family. For the more complete illustration of the genus, I have added descriptions of two species from Cuba; these being foreign to our present limits, are not numbered in the following list.

Two species, which I considered as belonging to this genus, on close examination present characters altogether different. I have accordingly constructed a new genus for them, which must be placed in a different division of the family, near *Dendrophilus*. To avoid confusion, however, as the species will undoubtedly be mistaken by others for *Abræus*, I have thought it better to append the generic and specific description to the present essay.

Erichson has divided the six species known to him, into two groups. The first contains globular species, with very short estriate prosternum, with no lateral stria on the elytra, and with the pygidium inflexed, so as to form part of the ventral surface of the abdomen. Of this group there is but one species known to me in this country.

The second group has the prosternum bistrate, the elytra with a lateral stria

and the pygidium perpendicular. The species are numerous and vary in form from almost globular to tolerably strongly depressed.

A synoptic table may be thus constructed :

- A. *Corpus globosum*, pygidio inflexo. ABRÆUS.
1. rufus, elytris valde aciculatis, linea basali hamata insculptis punctiformis.
- B. *Pygidium perpendiculariter deflexum*. ACRITUS.
- a. Thorax basi marginatus.
 - * *Pygidium læve*, (corpore rotundato.)
 1. minus convexus, niger, elytris subtilius punctulatis et aciculatis, discus.
 2. valde convexus, niger, elytris punctatis, postice subtiliter aciculatis, fimetarius.
 3. valde convexus, piceus, elytris subtilius punctatis, postice densius aciculatis, strigosus.
 4. rufo-piceus, elytris punctatis et aciculatis, lateribus lævibus, postpectore punctato, conformis.
 - (Corpore subovali.)
 5. rufo-piceus, elytris subtilius punctatis et aciculatis, lateribus lævibus, postpectore lævi, simplex.
 - ** *Pygidium punctulatum*, (corpore subovali.)
 6. piceus parcius punctulatus, elytris lateribus lævibus, stria laterali subtili basalis.
 - (nigro-piceus, punctulatus, elytris lateribus lævibus, stria laterali profunda analis.)
 - b. Thorax basi non marginatus.
 7. ovalis, rufo-piceus, impunctatus, politus.
 8. oblongus, subdepressus niger, punctatus, pygidio lævi, maritimus.
 9. oblongus, subdepressus, niger, grossius punctatus, pygidio punctulato exiguus.
 - (rotundatus, subdepressus, rufus, aciculatus, pygidio vix punctulato atomus.)

ABRÆUS *Leach.*

1. A. punctiformis, subglobosus, rufus, thorace punctato, elytris valde aciculatis, linea basali hamata notatis, pygidio inflexo, punctato. Long. .02.

Common in the Southern States, under pine bark. I have adopted the name under which it has been sent me by Dr. Zimmerman. Body subglobose, very little longer than wide, rufous, somewhat shining; head and thorax finely punctured, the latter not margined at the base. Elytra strongly aciculate, marked on each side with a basal curved line, of a parabolic form; the outer leg of this curve may be traced quite to the apex, forming a fine marginal line; the epipleuræ and under surface of the body are very coarsely punctured. Pygidium strongly inflexed, punctured. Anterior tibiæ strongly dilated.

The prosternum is punctured, slightly emarginate behind, and not striate.

ACRITUS *Lec.*

Prosternum utrinque truncatum, bistriatum; mandibulæ retractæ; scrobiculi antennales maximi profundi, in thoracis parte inflexa antice siti; antennæ funiculo tenui, capitulo ovali; maxillæ mala interiore unco apicali armata; tarsi postici quadriarticulati; pygidium perpendicular.

Although by Erichson considered as a portion of *Abræus*, I have ventured to separate these species as a distinct genus, since the characters already pointed out by Redtenbacher (*Fauna Austr.* 240) in the form of the posterior tarsi and the inner lobe of the maxillæ seem to indicate the necessity of removing these species from *Abræus*.

In the form of the antennæ and the cavities for their reception, this genus agrees perfectly with *Abræus*; the prosternum is, however, less flat, and is truncate posteriorly as well as in front; it is marked with a distinct stria on

each side. The elytra are destitute of a marginal stria; the epipleuræ have a single entire lateral stria, and occasionally a rudiment of a second at the base. The pygidium is perpendicular, not inflexed, as in *Abræus*. The anterior tibiæ are more or less dilated, but always gradually so. The middle and posterior tibiæ are slender. The posterior tarsi are only four-jointed, the portion usually composing the basal joint being firmly ankylosed to the second joint.

To this genus will also belong *Hister minutus Fabr.*, and *Hister nigricornis Ent. Hest.*, both placed in *Abræus* by Erichson.

1. *A. discus*, rotundatus, minus convexus, nigro-piceus, thorace subtilissime, elytris subtiliter sat dense punctatis, illo basi marginato, pygidio lævi. Long. .04.

Two specimens found in upper Georgia, under bark. Body round, less convex than usual, piceous-black, shining. Head very obsoletely punctulate. Thorax extremely finely punctulate, with a distinct transverse line at the middle of the base. Elytra finely and tolerably densely punctured, very slightly aciculate; epipleuræ broad, finely punctulate, lateral stria deep. Pygidium impunctured; under surface finely punctured; legs rufous, anterior tibiæ gradually very slightly dilated.

2. *A. fimetarius*, rotundatus, convexus, piceus vel niger, thorace punctulato, basi medio marginato, elytris minus subtiliter punctatis postice subtiliter aciculatis, pygidio impunctato, alutaceo. Long. .04.

Abræus fimetarius Lec., Bost. Journ. Nat. Hist. 5, 54.

A pretty large species, found in the Southern and Middle States, in dung and under stones. Head very finely punctulate. Thorax not densely, very finely punctured, with a transverse marginal line at the middle of the base. Elytra not densely, somewhat coarsely punctured, punctures becoming small posteriorly and intermixed with dense fine scratches; towards the base there are usually one or two oblique abbreviated striæ visible, which, however, are sometimes entirely obsolete; epipleuræ inferiorly smooth, lateral stria deep. Pygidium impunctured, slightly chagrined. Under surface sparsely punctured; anterior tibiæ scarcely dilated.

A specimen found by Dr. Schaum at New Orleans, has the basal elytral striæ very deep, and between them about the middle, is a shorter, also oblique stria. I can find no other difference between it and the others.

From the difficulty of perceiving the characters of such minute species, the descriptions of my father are by no means as accurate in this genus as in the others contained in his Monograph. Under this species he says that the thorax is not margined posteriorly, but has a row of larger punctures. Now in all the species which have the posterior line discernible, it is formed by the limit of a series of basal punctures or aciculations, and is not an engraved distinctly defined line.

3. *A. strigosus*, rotundatus, convexus, vix ovalis, piceus, thorace densius punctulato, basi medio marginato, elytris confertim punctatis postice subtiliter dense aciculatis, pygidio impunctato. Long. .03.

Two specimens from Georgia. This species resembles very much *A. fimetarius*, but is smaller, and the punctures of the thorax are denser and more distinct; the punctures of the elytra are smaller. Body rounded, convex, scarcely oval, shining piceous. Thorax densely, distinctly punctulate, strongly margined at the middle of the base. Elytra moderately punctured, punctures becoming small posteriorly, where they are mingled with fine dense scratches; epipleuræ almost smooth, lateral stria deep. Pygidium impunctured, obsoletely chagrined. Postpectus and abdomen sparsely punctured, anterior tibiæ very slightly dilated.

4. *A. conformis*, rotundatus, convexus, vix ovalis, piceus vel rufopiceus, thorace subtiliter punctulato, basi medio marginato, elytris punctatis postice subrugosis, lateribus lævibus stria laterali profunda, pygidio impunctato. Long. .023.

Georgia, under bark. Similar in form to *A. fimetarius*, but only half as

large, and a little less globose; varies in color from piceous to brownish-red. Thorax very finely punctured; middle of the base distinctly margined. Elytra more finely not densely punctured, punctures posteriorly smaller and mixed with scratches; the sides and epipleuræ are smooth, the lateral stria deep. Pygidium impunctured; postpectus sparsely distinctly punctured; anterior tibiæ slightly dilated.

5. *A. simplex*, oblongo-ovalis, convexus, rufus vel rufo-piceus, thorace subtiliter punctulato, basi medio marginato, elytris subtilius punctatis et postice rugosis, lateribus lævibus, stria laterali subtili, pygidio impunctato. Long. .025.

Abræus simplex Lec., Bost. Journ. Nat. Hist. 5, 54, tab. 10, fig. 11.

Abundant in Georgia, under bark. This species is more oval than *A. confinis*, which it resembles very closely, so that the upper surface presents hardly any difference; the punctures of the elytra are, however, finer, and the posterior rugæ more numerous. The lateral stria is very fine. The postpectus is smooth; with a very powerful lens, and in a particular light, may be seen a few very minute indistinct punctures. Anterior tibiæ scarcely dilated.

6. *A. basalis*, oblongo-ovalis, modice convexus, piceus, parcius subtiliter punctatus, thorace basi medio marginato, elytris lateribus lævibus, stria laterali subtili, pygidio punctulato. Long. .025.

Abræus basalis Lec., Annals of Lyceum of New York, 5, 170.

Gila and Colorado Rivers, California, under the bark of Cottonwood. This species is very similar in form to *A. simplex*, but is a little less convex. The more distinct punctuation of the thorax and the finely punctulate pygidium will at once distinguish it. The punctures of the elytra are less mixed with rugæ posteriorly; the sides and epipleuræ are smooth; the lateral stria is fine, and the postpectus is sparsely punctured; the anterior tibiæ are scarcely dilated.

From *A. analis* it differs by the less dense and more distinct punctuation, as well as by the less deep lateral stria.

(*A. analis*, piceus, modice convexus, leviter ovalis, thorace punctulato, basi medio marginato, elytris punctatis et postice subrugosis, lateribus lævibus, stria laterali profunda, pygidio subtiliter punctulato. Long. .027.

One specimen from Cuba, kindly sent by Don Felipe Poey. The distinctive characters are already pointed out under the preceding species.)

7. *A. politus*, rufo-piceus, subovalis, modice convexus, lævissimus, stria laterali subtili. Long. .025.

Middle, Southern and Western States, abundant under stones. This species has entirely the form of *A. simplex*, but is destitute of punctures both above and beneath. The lateral stria is fine but distinct, the anterior tibiæ are scarcely dilated. I have distributed this insect under the name *A. lævigatus*; on account of *Hister lævigatus* Payk. I have thought it better to change this name. Paykull's species is not an *Abræus*, as conjectured by my father, but is evidently a species of *Cærosternus* Lec., and only differs from the Cuban *C. lævissimus* Lec. (Proceed. Acad. 6, 40,) in having the pectus slightly punctured. It has not been seen since Paykull's time, and is probably a West Indian species. Further comparison is necessary to determine whether *Cærosternus* should not be reunited to *Tribalus*; the rounded margin of the prosternum might be called a short broad lobe, while the lateral extension, although not lobed in its outline, might be but a very slight variation of the form described by Erichson.

8. *A. maritimus*, oblongus fere depressus, niger, thorace subtilius, elytris sat dense punctatis, pygidio lævi. Long. .045.

Abræus maritimus Le Conte, Ann. Lyc. of New York, 5, 170.

San Diego, California, under decomposing kelp on the shores of the ocean. This species, in form and size, equals our common *Plegaderus transversus*, but has all the characters of the present genus. The thorax is finely punctured, the sides are scarcely rounded; the elytra are distinctly punctured, the punctures

becoming slightly aciculate posteriorly; there is a slight vestige of an oblique stria at the base; the epipleuræ are almost smooth, the lateral stria deep; the pectus and abdomen are scarcely punctured; the pygidium is impunctured; the anterior tibiæ are gradually and broadly dilated.

9. *A. exiguus*, oblongus, fere depressus, niger, thorace densius, elytris distinctius punctatis, pygidio punctulato. Long. .03.

Abræus exiguus Erichson, Klug's Jahrb., 208.

Abræus aciculatus Le Conte, Bost. Journ. Nat. Hist. 5, 54; tab. vi. fig. 10.

Abræus obliquus Le Conte, Bost. Journ. Nat. Hist. 5, 54; tab. vi. fig. 12.

Abundant in the Southern States, and found also at Fort Laramie, Nebraska. Body oblong, subdepressed. Thorax densely, distinctly punctured, sometimes slightly rugous. Elytra more coarsely punctured, posteriorly more or less aciculate; lateral stria deep. Postpectus and abdomen coarsely punctured. Pygidium finely but distinctly punctulate. Feet rufous, anterior tibiæ very slightly dilated.

There is frequently a trace of an oblique stria at the base of the elytra; the concavity of the epipleuræ in this, as in some other species, causes the lateral stria in some lights to appear double.

Two specimens, which appear somewhat broader and more depressed than ordinary, form *Abræus obliquus* Lec., but after a very close examination, I cannot find any sufficient distinction. By the thorax in the one described being dislocated, so as to show the posterior edge, it was incorrectly described by my father as margined at the base.

A. *atomus*, rotundatus, fere depressus, rufus, thorace elytrisque aciculato-punctatis, pygidio vix punctulato. Long. .03.

One specimen from Cuba, kindly sent by Don Felipe Poey. Body circular, depressed, shining rufous. Head finely punctulate. Thorax and elytra coarsely and densely punctured, punctures somewhat aciculate; epipleuræ? Pygidium finely and obsoletely punctulate; anterior tibiæ not dilated.

I am not able to make a satisfactory examination of the under surface, but the form, color and punctuation are sufficient to separate it at once from the preceding species, to which alone it is allied.

BACANIUS Lec.

Prosternum latum, postice truncatum, antice breviter lobatum, et late rotundatum, non striatum; mandibulæ subretractæ; scrobiculi antennales magni, diffusi, ad medium thoracis partis inflexæ siti; antennæ funiculo tenui, articulis penultimis rotundatis, capitulo ovali modice compresso; pygidium inflexum; tibiæ anticæ dilatatæ, posteriores angustæ; tarsi omnes 5-articulati.

Although from the want of specimens for dissection, I am able to give but a meagre description of this genus, the characters above stated will show the necessity of separating it from *Abræus*, with which, from the size and form of the body, the species might be confounded. The distinction between this genus and *Dendrophilus* is however not so well defined; for the present it can be said, that the prosternum in *Dendrophilus* is rounded posteriorly and elevated in the middle and bistrate; the mesosternum is emarginate; the middle and posterior tibiæ are broadly dilated, and the pygidium is perpendicular.

Paromalus has the prosternum similar to *Dendrophilus*. In both the mesosternum is emarginate, while in *Bacanius* it is truncate.

The species constituting the second division below, ought probably to form a new genus, but the specimen has lost the antennæ, and I therefore postpone the farther consideration of the subject till new specimens were obtained.

1. *B. tantillus*, rotundatus, convexus, rufus, nitidus, minus subtiliter punctatus, elytris stria marginali antice abbreviata, pygidio punctulato. Long. .035.

Middle and Southern States, under bark and in fungi. Body convex round, almost globose, brownish red, shining. Head finely sparsely punctulate. Thorax not densely, distinctly punctured. Elytra more coarsely punctured than the

thorax, with traces of oblique striæ, near the base; marginal stria distinct, but not extending in front of the middle; epipleuræ sparsely punctured, with indistinct traces of a lateral line. Pygidium strongly inflexed, finely punctured. Body beneath coarsely punctured; anterior tibiæ somewhat suddenly and broadly dilated.

2. *B. misellus*, rotundatus, convexus, rufus, nitidus, thorace parce punctulato, elytris punctatis, stria marginali integra, pygidio lævi. Long. .03.

Two specimens from New York, under bark. Similar in form to the preceding, but much smaller; the thorax is more finely punctured; the marginal stria of the elytra is entire, anteriorly receding from the margin; the lateral stria appears more distinct than in *B. tantillus*; the pygidium is smooth; under surface and feet as in the preceding.

§2. *Pygidium perpendiculare*; elytra acute marginata.

3. *B? marginatus*, rotundatus, modice convexus, niger, subnitidus, dense grosse punctatus, elytris margine laterali acuto, pygidio punctulato. Long. .06.

One specimen from Illinois; Mr. Willcox. Body rounded, slightly and regularly convex, forming a small segment of a sphere, black, somewhat shining. Head densely punctulate. Thorax densely punctured, lateral margin longitudinally impressed. Elytra coarsely punctured, with slight vestiges of external oblique striæ at the base; exterior margin sharply defined; marginal stria obsolete; epipleuræ broad, flat, bistriate. Pygidium perpendicular, finely punctured. Under surface punctured, feet rufous, anterior tibiæ curved inwards, slightly dilated; posterior tibiæ very slender.

The Committee on the following paper by Dr. Greene, reported in favor of publication in the Proceedings.

Chemical Investigation of Remains of Fossil Mammalia.

By FRANCIS V. GREENE, M. D.

At the request of Dr. F. A. Genth, I have made in his laboratory a chemical investigation of several fossil remains, collected by D. D. Owen, M. D., in his late survey of Nebraska Territory. The specimens, which consisted of a brown portion of bone from a Titanotherium, the enamel and dentine of a tooth of the same animal, and a portion of the tibia of an Archæotherium, were kindly furnished me by Dr. Joseph Leidy from the collection of the Academy of Natural Sciences.

The general outline of the methods pursued in determining the constituents of these specimens is as follows:

The finely-powdered substance, being always dried over sulphuric acid, was dissolved (according to H. Rose's method for the determination of phosphoric acid) in nitric acid, and after adding mercury in sufficient quantity to combine with the phosphoric acid, it was evaporated to dryness in a water bath. Afterwards it was moistened with water and again evaporated to dryness; this operation being repeated until no odor of nitric acid could be observed at the temperature of the water bath. To this dried mass water was now added. The insoluble portion consisted only of phosphate and basic nitrate of mercury, (except in one analysis, in which iron existed in determinable quantity;) the solution contained fluoride of mercury and the other constituents as nitrates. This was filtered off, and the insoluble phosphate, after being washed and thoroughly dried, was fused with carbonate of soda, with all the precautions mentioned by Rose. The fused mass, consisting only of phosphate of soda and the excess of carbonate of soda, dissolved therefore completely in water, except in one analysis, in which a portion of the iron remaining undissolved, was filtered off and determined in the usual manner. This watery solution was then acidulated with hydrochloric